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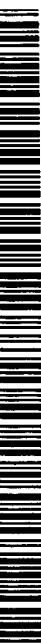
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(54) Title: GRADED PARTICULATE COMPOSITIONS

(57) Abstract: A method of forming a particle mass comprising at least two particle populations arranged in a desired graded relationship, comprising: forming in a container a first layer of dry particles constituting a first particle population having a desired particle size distribution, superimposing on the first layer a second layer of dry particles constituting a second particle population having a desired particle size distribution, the second layer being in direct contact with the first layer at a contact interface, and causing the particle mass in the container to vibrate to cause a desired degree of migration of particles from one or both layers across the contact interface under the influence of force experienced by particles in the mass. The particle populations may have different physical and/or chemical properties, so that the particle mass is functionally graded for subsequent fusion into a functionally graded material such as a ceramic or ceramic/metal composite.